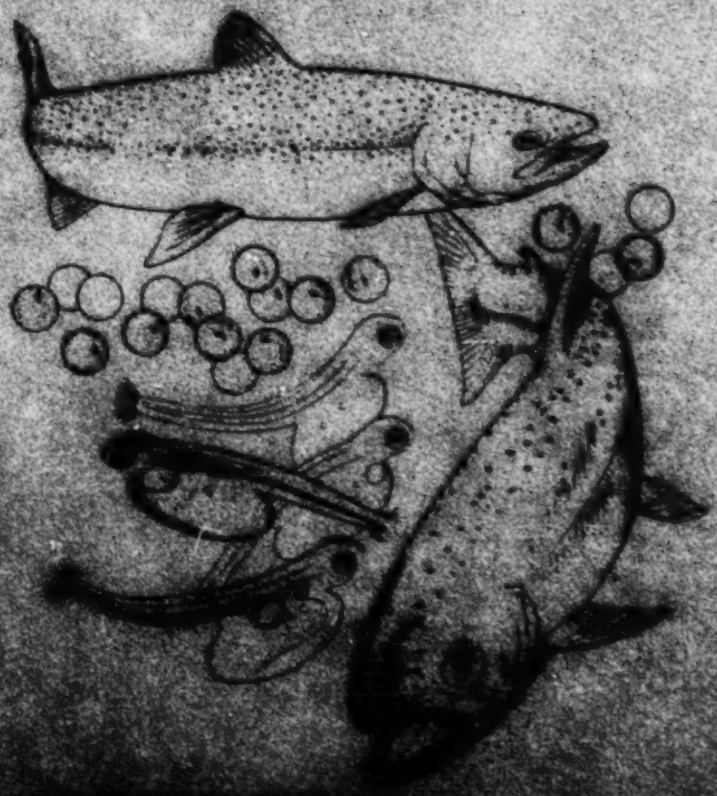
The Market for Farmed Salmon:

An Overview



THE MARKET FOR FARMED SALMON:

AN OVERVIEW

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PREFACE

This publication has been prepared in response to a need for market information on farmed salmon. It is not the objective of this publication to examine all the complex facets of marketing farmed salmon. This publication focuses primarily on achieving an understanding of the current world market for farmed salmon.

Many thanks are extended to the B.C. Salmon producers, B.C. seafood wholesalers, and U.S. seafood wholesalers for their participation. A special thank you is extended to Arnie Einmo, President of Dory Seafoods, for sharing his expertise.

Members of various Ministries, particularly the Marine Resources Section of the Fisheries Branch, Ministry of Environment, have contributed to this publication. Useful comments were provided by Jim Fralick, Aquaculture-Coordinator and Dan Burns, Aquaculture Research Assistant. Technical assistance was provided by Lynne Macdonald.

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INTRODUCTION

In a traditional wild salmon market, the popularity of farmed salmon has been increasing over the last decade. This is particularly true during the times in the year when fresh commercially caught salmon are not available. Three characteristics of the farmed salmon are primarily responsible for this development. Firstly, as a result of control growth and careful handling, farmed salmon are generally of a consistent quality. Moreover, through nutrition, the color and texture of the flesh can be adjusted to meet market demand. Secondly, farmed salmon offer a reliable source of supply throughout the year. Continuity of supply is an important consideration to suppliers and users of fresh salmon. Thirdly, farmed salmon can be dressed and delivered within hours of their being lifted from the pen. This short time span increases the freshness and quality of the salmon delivered to consumers.

The increased demand for farmed salmon has attracted many investors to this industry in B.C. and throughout the world. In 1984, there were 7 salmon farms in B.C. As of March 20th, 1986, there were 40 farms with fish, 69 newly approved applicants, 30 section 10 approvals[1], and 78 applicants awaiting approval. To some investors, salmon farming is being hailed as the 'New Klondike'. It is estimated that this expanding agricultural sector will contribute significantly, both directly and indirectly, to B.C.'s economy.

With the increased number of farms, B.C.'s production of farmed salmon is expected to grow at an accelerated rate in the late 1980's. Already, the 1988 harvest is estimated to reach somewhere between 10,000 and 12,000 tonnes. The projected 1988 harvest will be 39 to 47 times higher than the 1985 harvest of 250 tonnes. This significant increase in production has raised two major concerns among the present salmon producers: (1) the ability of the world market to absorb the increasing supply of farmed salmon, and (2) the market price of farmed salmon.

Although the world market for farmed salmon is currently expanding, it is not clear when the saturation level will be reached and what that level will be. With the production of farmed salmon growing at tremendous rates in other countries, as well as in B.C., the world farmed salmon market will definitely become a highly competitive one. As demonstrated in other commodity markets, increased competition for market shares generally leads to a decline in market prices. To avoid a large decline in price, salmon producers need to develop new markets, and to maintain and expand current markets.

With limited information and resources, it is impossible to deal with all the marketing issues in this report. This paper will restrict itself to achieving an understanding of the current world market for farmed salmon. The objective of this paper is three-fold: (1) examine recent and future production increases of farmed salmon in B.C., U.S., Norway, and other countries, (2) determine the current farmed salmon markets for B.C., U.S., and Norwegian farmed salmon, and (3) examine potential market opportunities for B.C. farmed salmon.

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[1]Applicants are either granted the right to undertake feasibility studies on a specific site or a site is reserved for an applicant.

The first section provides an understanding of the astounding growth in the supply of farmed salmon which underlines B.C.'s salmon producers' concerns. The remaining two sections focus on the market for farmed salmon.

PRODUCTION OF FARMED SALMON

B.C.'s production of farmed salmon (salmon raised in an enclosed environment) has increased at an annual average rate of 15.5 tonnes between 1980 and 1985. This growth rate is relatively insignificant when compared to Norway's annual average increase of 4,576 tonnes, during the same period. The difference between these two growth rates can be explained by comparing the developmental stage of the salmon farming industry in the respective countries. Between 1980 and 1985, B.C.'s salmon farming industry was starting to be recognized as a potentially important industry. During the same period, Norway's industry was well on its way to become an established industry. As B.C.'s salmon farming industry becomes better established in the later eighties, annual production is expected to increase at a higher rate. This is demonstrated by the projected 1988 harvest.

The expected increase in B.C.'s production, along with an increasing supply from Norway, Scotland, Chile, U.S., and others, have thrust marketing into the foreground. The goal of this section is to examine the current and expected production of farmed salmon in B.C., as well as the other countries mentioned. This section intends to provide an understanding of the magnitude of recent and expected increases in the world supply of farmed salmon that are responsible for generating B.C. producers' concern about their markets. In addition, the relative size of B.C.'s farm salmon industry will be examined.

A. PRODUCTION IN B.C.

With a total production of 1 tonne, the farming of salmon in B.C. did not attract much attention in 1976. However, the potential significance of this industry increased in the early eighties when total production increased from 41 to 157 tonnes (285 per cent) between 1979 and 1980. As shown in Table 1, growth continued and peaked in 1982 at 273 tonnes. It should be noted that the 1982 total is partly due to the liquidation of the fresh and frozen inventory of Apex Bio-Resources Limited, one of the few producers at the time. Production decreased in 1983 and 1984, as a result of the implementation of a government broodstock incentive program, where farmers held fish for reproduction, as well as the failure of Apex Bio-Resources Limited.

Table 1

PRODUCTION OF FARMED SALMON IN B.C., WASHINGTON STATE, AND NORWAY, 1976-1987

	B.C.[a] (Tonnes)	WASH.[b] (Tonnes)	B.C./WASH. (%)	NORWAY[c] (Tonnes)	B.C./NORWAY (%)
1976	1	179	0.8	1 431	0.1
1977	7	131	5.3	2 137	0.3
1978	13	196	6.6	3 540	0.4
1979	41	759	5.4	4 389	0.9
1980	157	391	40.2	4 321	3.6
1981	176	871	20.2	8 418	2.1
1982	273	678	40.2	10 695	2.6
1983	125	833	15.0	17 298	0.7
1984	107	1 176	9.1	22 185	0.5
1985	250[d]	1 257[d]	19.9	27 200[d]	1.0
1986	n/a	n/a		40 000[d]	
1987	n/a	n/a		55 000[d]	

[a] B.C. Ministry of Environment, 1976-1984.
The 1985 estimate was provided by Bob Nellis of B.C. Salmon Association.

[b] Dale Ward, Washington State's Department of Fisheries, Record Custodian, Washington State.

[c] Don Ference & Associates, 1976-1984.
Huntley, R. V. "The Impact of Norwegian Farmed Salmon On Canadian Exports To The U.S." Department of Fisheries and Oceans, Ottawa.

[d] Estimated production figures.

Note: The data from B.C. Ministry of Environment are based on estimates submitted by salmon producers.

An estimated 250 tonnes of farmed salmon, mainly Coho (a Pacific salmon), was harvested in 1985. This total represents an increase of 143 tonnes (134 per cent) over 1984's total. From salmon egg purchases recorded in 1985, an estimated 10,000 to 12,000 tonnes of farm raised salmon is expected to be harvested by B.C. producers in 1988.[2] Of the anticipated total, 50 per cent will be Coho and 50 per cent will be Chinook salmon.

[2] Bob Nellis, B.C. Salmon Farmers Association.

The growth in B.C.'s farmed salmon industry, in recent years, is largely attributed to advancements made in disease control, nutrition, and other biological and environmental factors. The availability of domestic and disease screened eggs have also contributed to the increase. In addition, the number of salmon farms has been increasing at an accelerated rate.

B. PRODUCTION IN NORWAY

With the support of the Norwegian government, the farming of Atlantic salmon developed rapidly in the seventies. By 1979, the industry reached a production totalling 4,389 tonnes. The 1985 harvest is estimated to be 27,200 tonnes, an increase of 22,811 tonnes (520 per cent) over 1979. The reasons behind Norway's ability to increase production at such an unprecedented rate have been summarized by Mylchreest. He attributed Norway's success to the following five factors.

(1) Biophysical suitability such as protected coves and inlets, the quality and temperature of the sea water, and the abundant supply of fresh water along the Norwegian coastline.

(2) Government subsidization of extensive road/sea/air transportation systems linking the numerous coastal communities.

(3) Government support in the development of broodstock, disease control and nutrition.

(4) An abundant supply of fish waste for feed.

(5) A coordinated marketing and quality control system. These factors continue to allow the Norwegians to expand their annual production of farmed salmon. The 1986 and 1987 projected harvests suggest that the Norwegian industry will continue to expand at an increasing rate in the later eighties.

B.C.'s production, as a percentage of Norwegian production, has ranged from a low of 0.1 per cent in 1976 to 3.6 per cent in 1980. With the exception of 1980-1982, B.C.'s production has been 1 per cent or less than 1 per cent of Norway's production. These percentages suggest that although B.C.'s production has been increasing at a rapid rate, Norway has achieved a higher rate of increase. This is certainly the case when B.C.'s annual average rate of increase is calculated for the period 1980 to 1985. Compared to Norway's average increase of 4,576 tonnes annually, B.C.'s average annual increase was only 15.5 tonnes.

C. PRODUCTION IN UNITED STATES

With the exception of 1984, relatively accurate data on U.S. production of farmed salmon are not available. However, some data are available for both farmed and ranched salmon. In the U.S., total production of farmed and ranched salmon totalled 11,567 tonnes in 1982, 9,344 tonnes in 1983, and 16,602 tonnes in 1984. Almost 95 per cent of the farmed and ranched salmon were produced on the west coast.[3]

Of the 1984 U.S. total, only 1,814 tonnes were farmed salmon. The remaining 9,977 tonnes were produced through ocean ranching.[4] Washington State accounted for 1,176 tonnes (65 per cent) of U.S.'s total farmed salmon in 1984. Since Washington State produces more than half of the U.S.'s total, production statistics from this state will be used to estimate U.S. trends.

Table 1 shows that Washington State has also experienced rapid growth in its production of farmed salmon over the last decade. From a total production of 179 tonnes in 1976, Washington State's 1985 production is estimated at 1,257 tonnes. This represents a 7 per cent increase over 1984. Washington State has exhibited an average annual increase of approximately 129 tonnes over the period 1980 to 1985. This is 8 times higher than the average annual increase shown by the B.C. salmon industry.

At present, there are seven farms raising baby Coho salmon and three farms raising standard size Coho and Atlantic salmon in Washington State.[5] As in B.C., the farming of salmon is a relatively new industry to Washington State. The recent increases in production are attributed to better disease control, availability of eggs, and other biological and environmental advances.

B.C.'s production, as a percentage of Washington State, ranged from 0.8 per cent in 1976 to 40.2 per cent in 1980 and 1982. In 1985, B.C.'s production was about 20 per cent of Washington State's estimated harvest.

D. PRODUCTION IN SCOTLAND

Recent production information indicates that Scotland is becoming an important producer of farmed salmon. In 1985, production totalled 6,921 tonnes, 77 per cent higher than the 1984 total of 3,900 tonnes. Scotland estimates its production will reach 9,700 tonnes in 1986 and 14,000 tonnes in 1987. There are no figures available to calculate Scotland's average annual increase in production.

B.C.'s total production, as a percentage of Scotland's total production, increased from 2.7 per cent in 1984 to 3.6 per cent in 1985.

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[3] Billie Hougart, U.S. Aquaculture Coordinator, Washington D.C.
[4] Ocean ranching occurs primarily along the west coast of Washington State through California.
[5] Arnie Einmo, President of Dory Seafoods, Seattle, WA, U.S.A.

E. PRODUCTION IN CHILE

The first efforts to produce farmed Coho in Chile started in 1979. It was not until 1983 that any quantity of salmon was produced. Currently, there are eight pen-rearing Coho operations in Chile. In general, the Chileans harvest 5 per cent of their crop in December, 10 per cent in January, 20 per cent in February, and 65 per cent in March. The large March harvest is mainly a direct reflection of the weather due to Chile's geographic location in the southern hemisphere.

Chile's total production was 250 tonnes in 1983/84, 530 tonnes in 1984/85, and 1,340 tonnes in 1985/86. The projected harvest is 2,150 tonnes in 1986/87 and 2,650 tonnes in 1987/88. Both projections suggest that production will continue to increase throughout the remainder of this decade.

F. PRODUCTION PROJECTIONS

B.C., Washington State, Norway, Chile, and Scotland's accumulated annual production of farmed salmon has increased over time. From projected harvests, it appears that the total production by all these countries will continue to increase well into the later eighties. From Table 2, it is reasonable to assume that the world production of farmed salmon will show a similar trend; particularly when production increases are also projected for Japan, New Zealand, Ireland, and others.

Table 2

SUMMARY OF FARMED SALMON PRODUCTION, 1983 - 1987
(Tonnes)

	B.C.	WASH. STATE	NORWAY	CHILE	SCOTLAND	TOTAL	% OF CHANGE
1983	125	833	17 298	250	n/a	18 506	
1984	107	1 176	22 185	530	3 900	27 898	50.8
1985[a]	250	1 257	27 200	1 340	6 921	36 968	32.5
1986[a]	600	n/a	40 000	2 150	9 700	52 450	41.9
1987[a]	2 500	n/a	55 000	2 650	14 000	61 550	17.3

[a]Estimated production figures.

Sources: (1) Fisheries Branch, B.C. Ministry of Environment.
(2) Washington State's Department of Fisheries, Washington State.
(3) Fish Farming International, "Another Record Harvest," Volume 13, No. 1, Feb. 1986, page 16.
(4) Fish Farming International, "Another Salmon Record," Volume 13, No. 3, March 1986.

Faced with its domestic and world production increases, it is understandable that B.C. salmon producers are concerned about the markets for their product.

MARKETING

By definition, marketing means simply to sell. In practice, marketing encompasses all the activities that lead to the act of selling. For example, the identification of a specific group's demand (i.e. prices, quality, package size, etc.) for the purpose of product differentiation is also known as marketing.

To develop effective marketing strategies for market maintenance, expansion, and development, B.C. salmon producers need to: (1) identify the current consumers of farmed salmon; (2) determine characteristics of the farmed salmon that dictate consumer purchases; (3) understand the demographic, geographic, and economic factors of current and potential consumers; and (4) identify other market segments that may be induced to consume farmed salmon.

It is beyond the scope of this section to answer all of these marketing questions. Hence, this section will focus on the following.

(1) Identify the current markets for B.C., Norwegian, and Washington farmed salmon.

(2) Examine current market prices for B.C., Norway, and U.S. farmed salmon.

(3) Identify market opportunities for B.C. farmed salmon.

A. MARKETS FOR FARMED SALMON

The purpose of this section is to describe the leading purchasers of B.C., Norwegian, and U.S. farmed salmon.

Farmed salmon are sold primarily in the fresh form. The size of the farmed salmon on the market ranges from less than 1 kilogram to greater than 6 kilograms. The majority of the small salmon are sold as pan size salmon. They are presently sold head-on, bone-out, and packed in 5 and 30 pound cartons. Large salmon, 2 kilograms and up, are sold head-on, dressed, and packed in 50 to 100 pound cartons. Presently, the primary purchasers of farmed salmon are European smokehouses and upscale, white table cloth establishments.

(a) B.C. Farmed Salmon

"Food Market Sales" are the sales of dressed and live farmed salmon sold to fish markets and restaurants.

For 1983 and 1984, B.C. producers report a higher volume of fish market sales to wholesalers than B.C. and Seattle wholesalers estimate they purchased.[6] In this paper, it was decided to use the estimated purchase figures provided by wholesalers, because they can provide a more detailed market breakdown. B.C. farmed salmon producers sold their salmon to four major fish wholesalers in B.C. and two in Seattle. Tables 3 and 4 show the information gathered from contact with these B.C. and Seattle wholesalers.

Based on wholesaler estimates, B.C. wholesalers increased their farm salmon purchases by between 67 per cent to 94 per cent from 1983 to 1984, while purchases by Seattle wholesalers dropped by between 63 per cent to 65 per cent.

Table 4 was developed to show the distribution of B.C. farmed salmon in North America, using the lowest estimated sales figures reported by wholesalers. While there was no increase in reported distribution to B.C. and prairie markets between 1983 and 1984, the percentage sold to eastern Canada increased significantly and the total sold to U.S. markets declined. The U.S. markets comprise of California, Chicago, Texas, Washington D.C., and Seattle.

(b) Washington State Farmed Salmon

Of the seven baby Coho farms in Washington State, five market their fish through Dory Seafoods, a seafood brokerage firm in Bellevue, Washington State. Little market information is available for the remaining two farms. However, when contacted, one farm said it is currently marketing its farmed salmon across the U.S. In addition, it has exported farmed salmon to B.C. As for the three farms growing large salmon, two are also marketing their salmon through Dory Seafoods. The remaining farm does not have fish large enough to market at present. Dory Seafoods distributes farmed salmon throughout the U.S.

(c) Norwegian Farmed Salmon

Norway was the first country to market a significant volume of farmed Atlantic salmon outside its own country. Today, it remains the largest producer and exporter of farmed salmon. A high quality product, continuity of supply, uniform size, and effective promotion strategy have contributed to Norway's success in marketing its product. The strength of the U.S. dollar against most of the other currencies, gave Norway products an advantage in the U.S. market.

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[6] Total market sales, as reported by B.C. producers, totalled 125,281 kilograms in 1983 and 106,838 kilograms in 1984. The wholesalers in B.C. and Seattle estimated their purchases totalled between 71,669 and 72,576 kilograms in 1983 and between 24,948 and 27,216 kilograms in 1984.

Table 3

DISTRIBUTION OF B.C. FARMED SALMON BY WHOLESALERS, 1983 & 1984

	1983	Destination	1984	Destination
B.C. Purchasers:				
Wholesaler #1	18,144 - 22,680 kg	Toronto (100%)	47,628 kg	Toronto (100%)
Wholesaler #2	6,804 kg	California (100%)		
Wholesaler #3	13,608 - 18,144 kg	Prairie Provinces (70%) Eastern Canada (5%) B.C. (25%)	13,608 - 18,144 kg	Prairie Provinces (70%) Eastern Canada (5%) B.C. (25%)
Wholesaler #4			13,608 kg	Washington D.C. (100%)
Total: (B.C.)	38,556 - 47,628 kg		74,844 - 79,380 kg	
Washington State Purchasers:				
Seattle Wholesaler #1	54,432 kg	California (50%) Washington D.C. (20%) Texas (15%) Chicago (15%)	6,804 - 9,072 kg	California (50%) Washington D.C. (20%) Texas (15%) Chicago (15%)
Seattle Wholesaler #2	17,237 - 18,144 kg	Seattle (5%) Seattle (5%) Chicago (70%) Texas (15%) California (10%)	18,144 kg	 Chicago (70%) Texas (15%) California (10%)
Total: (Wash. State)	71,669 - 72,576 kg		24,948 - 27,216 kg	

Source: Marketing Branch, B.C. Ministry of Agriculture and Food.

Table 4

DISTRIBUTION OF B.C. FARMED SALMON, 1983 AND 1984[a]

	1983		1984		
	Kilograms	% of Total Distributed	Kilograms	% of Total Distributed	% Change
Food Market Sales[b]					
Coho Sales	70 156		63 727		
Chinook Sales	55 125		43 111		
Total	125 281		106 838		
DISTRIBUTION:					
Canada -					
B.C.	3 402	3	3 402	3	0
Prairie Provinces	9 526	9	9 526	10	1
Eastern Canada	18 824	17	48 308	48	31
Total	31 752	29	61 236	61	32
United States -					
California	35 744	32	5 216	5	-27
Chicago	20 231	18	13 721	14	-4
Texas	10 750	10	3 742	4	-6
Washington D.C.	10 886	10	14 969	15	5
Seattle	862	1	907	1	0
Total	78 473	71	38 555	39	-32
TOTAL	110 225	100	99 791	100	

[a]Using the lower estimates from Table 3.
[b]Farm raised salmon sold to wholesalers, brokers, retailers and restaurants.

SOURCE: Marketing Branch, B.C.M.A.F.

Norway exports its farmed salmon mainly in the fresh and frozen form. The total quantity of farmed fresh and frozen Norwegian salmon exported are shown in Table 5 below.

Table 5

TOTAL EXPORT OF FRESH AND FROZEN NORWEGIAN FARMED SALMON
1982 - 1985

	FRESH		FROZEN		TOTAL
	Tonnes	% of Total	Tonnes	% of Total	Tonnes
1982	7 868	86	1 332	14	9 200
1983	13 014	85	2 383	15	15 397
1984	17 282	88	2 361	12	19 643
1985	21 444	90	2 448	10	23 892

Source: Compiled from statistics provided by the Canadian Embassy in Norway.

Norway has shown a continuous increase in its total export of farmed salmon over the years 1982 to 1985. With the exception of 1983, the proportion of fresh salmon to frozen salmon exported has increased. Fresh salmon continue to make up a large portion of Norway's total export.

The major purchasers, by country, of fresh and frozen farmed Norwegian salmon are presented in Tables 6 and 7. Selected countries are discussed in detail below.

(i) United States

During the seventies, France, West Germany, and Denmark were the major importers of Norwegian salmon. Recently, the United States has joined these countries as a major importer. From 1982 to 1985, the United States' import of Norwegian salmon has increased at an annual average rate of 1,920 tonnes. In 1985, it imported 6,552 tonnes (22 per cent of Norway's total export) of fresh and frozen Norwegian salmon at a total value of $60 million Canadian (CIF). A contributing factor to Norway's success in the U.S. market is the continuous devaluation of the Norwegian krone against the U.S. dollar (Mylchreest).

Of the total Norwegian salmon imported into the U.S. in 1985, 6,473 tonnes (approximately 99 per cent) were fresh, and 79 tonnes (1 per cent) were frozen. The U.S. was the single largest importer of fresh Norwegian salmon during the years 1984 and 1985. This is remarkable considering Norwegian salmon did not appear in the U.S. market until approximately 1980. The U.S. 1985 total fresh purchases represented 30 per cent of total fresh farmed salmon exported by Norway.

Table 6

NORWAY'S EXPORT OF FRESH FARMED SALMON, 1982 - 1985

	1982		1983		1984		1985	
	QUANTITY Tonnes	VALUE (CIF)[a] Mil Can$	QUANTITY Tonnes	VALUE (CIF)[a] Mil Can$	QUANTITY Tonnes	VALUE (CIF)[a] Mil Can$	QUANTITY Tonnes	VALUE (CIF)[a] Mil Can$
United States	711	6.23	2 405	20	4 639	38	6 473	60
France	2 300	17.77	3 263	24	3 480	25	3 828	31
United Kingdom	507	4.10	855	6	1 183	9	1 296	11
Sweden	600	5.38	794	7	879	7	1 023	10
Denmark	1 149	8.67	1 940	13	2 141	15	2 494	19
Japan	34	0.25	2 028	16	2 431	19	2 819	25
Switzer-land	328	2.71	93	1	183	1	278	2
W. Germany	1 527	8.23	506	4	516	4	570	5
Others	712	10.25	1 130	7	1 830	13	2 663	22
Total	**7 868**	**63.59**	**13 014**	**98**	**17 282**	**131**	**21 444**	**185**

[a]Insurance and freight costs have been included.

Source: Canadian Embassy in Norway.

Table 7

NORWAY'S EXPORT OF FROZEN FARMED SALMON, 1982 - 1985

	1982		1983		1984		1985	
	QUANTITY Tonnes	VALUE (CIF)[a] Mil Can$	QUANTITY Tonnes	VALUE (CIF)[a] Mil Can$	QUANTITY Tonnes	VALUE (CIF)[a] Mil Can$	QUANTITY Tonnes	VALUE (CIF)[a] Mil Can$
United States	6	0.04	54	0.4	87	0.7	79	0.8
France	333	3.35	1 058	10.2	934	8.5	1 089	11.0
United Kingdom	404	3.50	482	3.7	523	3.9	557	4.1
Sweden	41	0.27	30	0.2	76	0.6	55	0.5
Denmark	25	0.23	76	0.6	219	1.8	293	2.6
Japan	n/a	n/a	359	3.1	238	2.1	154	1.4
Switzer-land	24	0.21	41	0.3	91	0.8	107	1.0
W. Germany	298	2.69	65	0.6	47	0.4	55	0.5
Others	n/a	n/a	218	2.3	146	1.3	59	1.7
Total:	**1 332**	**12.40**	**2 383**	**21.4**	**2 361**	**20.1**	**2 448**	**23.6**

[a]Insurance and freight costs have been included.

Source: Canadian Embassy in Norway.

Although the total volume has been increasing, the U.S. remains a relatively small importer of frozen Norwegian salmon. This is a reflection of its relatively large commercial fishing industry. In 1985, U.S. purchased 3.2 per cent of total frozen Norwegian salmon exported. This is 0.5 per cent below the previous year.

(ii) Japan

Aside from the U.S., Japan has also shown an accelerated increase in its import of Norwegian salmon. From a total import of approximately 34 tonnes in 1982, Japan's 1985 import of Norwegian salmon totalled 2,973 tonnes. The total value of the 1985 import was approximately $26 million (Canadian), as opposed to $250,000 (Canadian) in 1982.

Japan's 1985 total import of Norwegian salmon consisted of 95 per cent (2,819 tonnes) fresh and 5 per cent (154 tonnes) frozen. Japan purchased 13 per cent of Norway's total fresh export, and 6 per cent of Norway's frozen export.

(iii) France

From 1979 to 1983, France was the largest importer of Norwegian fresh and frozen salmon. Although the total import of Norwegian salmon has been increasing in volume, France is currently the second largest importer following the U.S. France purchased a total of 4,917 tonnes (approximately 21 per cent) of total Norwegian export in 1985. Of the total quantity imported, 78 per cent was fresh, and 22 per cent was frozen.

France was the largest importer of frozen Norwegian farmed salmon in 1983, 1984 and 1985. During these three years, France's purchase of total frozen Norwegian salmon exported averaged 43 per cent annually.

(iv) Denmark and West Germany

Over the period 1982 to 1985, Denmark's import of fresh and frozen Norwegian farmed salmon have been expanding steadily. Although the total volume of imported fresh salmon has increased, its proportion with respect to total Denmark import has dropped from 98 per cent in 1982 to 89 per cent in 1985.

West Germany's import of fresh and frozen Norwegian farmed salmon totalled 625 tonnes in 1985. This is 1200 tonnes (66 per cent) below the 1982 total of 1,825 tonnes. Approximately 91 per cent of West Germany's total import in 1985 was fresh salmon.

B. PRICES

As a fresh and high quality product, farmed salmon have commanded a premium price in the marketplace. According to recent U.S. average market prices of farmed salmon (Table 8), the Norwegian Atlantic salmon

currently commands the highest price at a given size in the U.S. market. This is followed by the Canadian and New Zealand Chinook salmon. The price for U.S. and Chile Coho salmon ranked below the other two varieties. There is not enough information at present to conclude that the premium price of the Atlantic salmon is the result of consumer preferences. It has been speculated that the higher price of the Atlantic salmon is largely a result of Norway's marketing efforts.[7]

With the exception of the size 0.23-0.34 kilogram, the price per kilogram increases as the size of the farmed salmon increases. The relatively high market price for farm salmon between 0.23 and 0.34 kilogram is a direct reflection of a strong market demand for a pan size, head-on, and bone-out salmon.

Table 8

FARMED SALMON PRICES IN U.S.
(March 1986 prices)
(CAN$ PER KILOGRAM, FOB SEATTLE)

SIZE KILOGRAM	U.S. COHO	CHILE COHO	CANADA CHINOOK	NEW ZEALAND CHINOOK	NORWAY ATLANTIC
0.23 - 0.34	7.24 - 7.70				
0.34 - 0.50	4.62 - 5.24				
0.50 - 1.00	5.24 - 6.93				
1.00 - 2.00	8.16 - 8.78	8.62 - 9.24	10.16 - 10.78		
2.00 - 3.00	10.01 - 10.78	9.55 - 10.78		10.78 - 11.40	11.86
3.00 - 4.00		10.78 - 11.40	11.40 - 12.01	11.40 - 12.01	13.09
4.00 - 5.00					13.55
5.00 - 6.00					14.63

Source: Arne Einmo, President of Dory Seafoods, Seattle, WA, U.S.A.

The prices paid to B.C. salmon producers are not available. Minimum prices paid by exporters to Norwegian salmon farmers are shown in Table 9. Again, price per kilogram increases as the size of the farmed salmon increases.

[7]Arnie Einmo, President of Dory Seafoods, Seattle, WA, U.S.A.

Table 9

MINIMUM PRICE PAID BY EXPORTERS TO NORWEGIAN SALMON FARMERS
(as of March 10, 1986)

	ROUND Can. $ / Kilogram	DRESSED (Head On) Can. $ / Kilogram
Under 1 kg	4.41	5.09
1 - 2 kg	5.49	6.46
2 - 3 kg	6.56	7.84
3 - 4 kg	6.86	8.03
4 - 5 kg	7.15	8.42
5 - 6 kg	7.54	8.82
6 - 7 kg	7.84	9.21
7 - 8 kg	8.13	9.21
Over 8 kg	8.33	9.40

Source: Canadian Embassy in Norway.

C. MARKET OPPORTUNITIES FOR B.C. FARMED SALMON

Western Europe, Japan, and the U.S. are major importers of farmed salmon. Import trends suggest that these markets will continue to expand in the near future. This is reinforced by a recent Norwegian study that predicted the market potential for farmed Atlantic salmon will total 120,000 tonnes by 1990. Of this total, France will purchase 28,000 tonnes, West Germany will purchase 22,000 tonnes, and Great Britain will purchase 15,000 tonnes. The rest of Europe will purchase 15,000 tonnes and Japan will purchase 10,000 tonnes. The United States, with an expected market potential of 30,000 tonnes, will be the largest market. The objective of this section is to determine the possibility of B.C.'s entry or expansion into these markets. Market opportunities within Canada will also be explored.

Regardless of the market, if B.C. farmed salmon producers want to expand their current market share, they need to ensure the continuity of supply, maintenance of a consistent high quality product, and competitive pricing.

(a) The Japanese Market

Given the importance of fish in the Japanese diet, combined with Japan's population and relatively high per capita income, market opportunities exist for B.C. farmed salmon in Japan. The existence of demand is best demonstrated by the increasing volume of Norwegian salmon being imported in recent years. Japan's total import is expected to reach 10,000 tonnes in 1990. Future market growth, as estimated by the Norwegians, must come through capturing increased market shares. There is no doubt that if B.C. is to enter this market, Norway will be one of its major competitors. Geographically, B.C.'s location with respect to Japan may provide B.C. with a competitive edge over Norway.

Consequently, transportation and insurance costs may be the determining factors in B.C.'s ability to compete competitively in this market.

A limiting factor to B.C.'s entry to this market is the size of Japan's own salmon production. Japan's production of Pacific salmon totalled 6,800 tonnes in 1985, almost 5 times more than the 1981 total of 1,150 tonnes. On average (1981-1985), Japan's production has increased approximately 1,413 tonnes annually. The continued growth of Japanese production will act as an inhibitor to expanding farmed salmon import market.

(b) The Western European Market

Norway's continuing dominance of this market will make it difficult and costly for B.C. salmon producers to penetrate. This is reinforced by the distance between B.C. and Western Europe. The relatively high cost of transportation alone will reduce B.C.'s ability to compete economically with Norway in this market. Moreover, the Atlantic salmon (wild or farmed) is believed to be preferred to the Pacific salmon.[8]

(c) The U.S. Market

Unlike Japan and Western Europe, B.C. farmed salmon are currently being marketed in the U.S. Based on market information, the quantity of B.C. farmed salmon exported to the U.S. declined between 1983 and 1984. It is unclear why this occurred given the observed growth in U.S.'s total import of Norwegian farmed salmon.

Although the total volume of farmed salmon imported by the U.S. is not available, U.S. import of all salmon (fresh and frozen, wild and farmed) can be used to illustrate the recent growth in this market. In 1985, U.S. import of salmon totalled 13,034 tonnes, at an estimated value of $80,437,293 (U.S.). The 1985 volume is 2.5 times greater than the 1982 total. Table 10 indicates that total U.S. import of all salmon has been increasing over time. The monthly import data suggest that, in general, more salmon are imported from September through December.

The increase in total U.S. salmon import is attributed primarily to increases in the import of fresh wild and farmed salmon. In 1985, total fresh wild and farmed salmon import constituted 67 per cent (8,737 tonnes) of all U.S. import of salmon, compared to 48 per cent (2,459 tonnes) in 1982. The majority of the fresh salmon entering the U.S. originates in Norway.[9] Table 11 presents a breakdown on the U.S.'s 1985 import of fresh wild and farmed salmon, by country and port of entry. In 1985, 71.6 per cent of all fresh salmon entering the U.S. originated in Norway. Canada is the second leading exporter of fresh salmon into U.S., followed by the United Kingdom. Together, these three countries are responsible for approximately 93 per cent of the U.S's total import of fresh wild and farmed salmon.

[8]Ringstad, Karl Johan, President of Mowi A/S, Norway

[9]The 1985 import of fresh Norwegian salmon, as recorded by the U.S. Department of Commerce, is lower than the export volume (Table 6) released by Norway. It is not clear why the difference exists.

Table 10

U.S. IMPORT OF FARMED AND WILD SALMON (FRESH & FROZEN)[a] BY MONTH, 1982-1986

	1982		1983		1984		1985		1986	
	M.T.	U.S.$	M.T.	U.S.$	M.T.	U.S.$	M.T.	U.S.$	M.T.	U.S.$
JAN.	278.84	1 183 703.	579.51	2 859 077.	875.00	4 556 043.	742.77	4 903 081.	1 684.78	9 900 360.
FEB.	153.05	884 869.	525.67	3 437 189.	711.99	4 372 379.	928.87	6 503 664.	1 181.43	7 372 826.
MAR.	349.30	2 293 833.	439.94	2 851 411.	1 014.46	6 111 253.	1 400.99	9 340 960.		
APR.	197.06	1 298 292.	657.39	4 230 036.	828.9[illegible]	5 912 318.	891.24	5 862 235.		
MAY	333.33	2 067 108.	633.31	3 735 151.	797.73	5 622 736.	1 012.98	7 315 247.		
JUNE	301.09	1 588 975.	327.06	2 138 826.	598.51	4 311 710.	775.66	5 650 835.		
JULY	462.19	2 540 811.	608.76	3 081 394.	859.91	5 463 635.	961.73	6 402 859.		
AUG.	429.97	1 790 077.	611.30	2 707 005.	500.85	3 347 672.	964.32	6 058 047.		
SEPT.	660.51	3 285 193.	639.49	2 866 679.	1 410.33	8 782 344.	971.93	6 031 916.		
OCT.	771.68	3 516 517.	849.80	3 435 693.	873.29	5 176 435.	1 242.20	6 486 531.		
NOV.	441.84	2 012 673.	583.42	2 791 032.	1 101.46	5 073 569.	1 508.75	7 106 187.		
DEC.	745.95	2 204 795.	670.51	3 371 349.	1 091.82	5 321 349.	1 632.78	8 775 731.		
TOTAL:	5 124.81	24 666 846.	7 126.16	37 504 842.	10 664.28	64 051 443.	13 034.21	80 437 293.	2 866.21	17 273 186.

[a]Includes fresh and frozen fillets

Source: U.S. Department of Commerce, Washington, D.C.

Table 11

U.S. IMPORT OF FRESH WILD AND FARMED SALMON[a], BY PORT OF ENTRY, 1985

		CANADA	NORWAY	UNITED KINGDOM	IRELAND	CHILE	NEW ZEALAND	OTHER COUNTRIES	TOTAL
Boston	M.T.	2.23	1 422.98	189.98	3.82			20.22	1 639.23
	% of Total	0.15	22.74	48.26	25.69			5.50	18.76
New York City	M.T.	2.74	3 157.98	13.95	3.42	47.04		81.26	3 306.39
	% of Total	0.19	50.47	3.54	23.00	32.53		22.09	37.84
Los Angeles	M.T.	16.68	731.80	1.94	3.74	42.89	57.39	82.08	936.52
	% of Total	1.14	11.70	0.49	25.15	29.66	58.64	22.32	10.72
San Francisco	M.T.	1.92	554.12	4.69			13.91	11.59	586.23
	% of Total	0.13	8.86	1.19			14.21	3.15	6.71
Seattle	M.T.	1 329.50	94.77	2.43		47.72	26.57	10.80	1 511.79
	% of Total	90.97	1.51	0.62		33.00	27.15	2.94	17.30
Washington, D.C.	M.T.		130.25	81.01				0.69	211.95
	% of Total		2.08	20.58				0.19	2.43
Chicago	M.T.		24.94	4.03	2.84			25.56	57.37
	% of Total		0.40	1.02	19.10			6.95	0.66
Miami	M.T.		51.83	2.28		3.02		0.10	57.23
	% of Total		0.83	0.58		2.09		0.03	0.66
Other Ports	M.T.	108.40	88.49	93.32	1.05	3.92		135.51	430.69
	% of Total	7.42	1.41	23.71	7.06	2.71		36.84	4.93
TOTAL	M.T.	1 461.47	6 257.16	393.63	14.87	144.59	97.87	367.81	8 737.40
	% Total Fresh	16.73	71.61	4.51	0.17	1.65	1.12	4.21	100.00

[a]Excludes fresh fillets

Source: U.S. Department of Commerce, Washington, D.C.

As shown in Table 11, most of Norway's fresh salmon are entering the U.S. through the east coast ports of Boston, New York, and Washington D.C. New York is the leading port in accepting imported Norwegian salmon. In 1985, 50 per cent of Norwegian fresh salmon entering the U.S. landed in this port, followed by Boston at 12 per cent. On the west coast, Los Angeles is the leading port for fresh imported Norwegian salmon, followed by San Francisco and Seattle.

Most of the fresh farmed and wild salmon from the United Kingdom are landing on the east coast of the U.S., with Boston, New York, and Washington D.C. accepting 72 per cent of all United Kingdom salmon. Ireland's fresh wild and farmed salmon are imported primarily on the east coast of the U.S. While Chile's farmed Coho are imported through Los Angeles, Seattle, and New York, New Zealand exports to the west coast only (Los Angeles, San Francisco, and Seattle).

Table 11 indicates that 91 per cent of Canada's fresh salmon are entering the U.S. through Seattle. A very small percentage are being exported to the east coast of the U.S.

Given the U.S.'s increasing demand for fresh salmon, opportunities exist for B.C. salmon producers to increase their U.S. sales. The west coast, particularly Los Angeles and San Francisco, represent an ideal market for B.C. farmed salmon. These two cities are heavily populated and the average per capita income is relatively high. Norway, Chile, and New Zealand will be B.C.'s main competitors in these markets. To expand B.C.'s market shares, B.C. producers need to determine the consumers' perception of their product relative to that of its competitors.

Although the west coast is the nearest market for B.C., salmon producers should not overlook other areas in the U.S. For example, at present, a small quantity of farmed salmon is imported by the central states. These markets may also prove to be profitable for B.C. producers.

(d) The Canadian Market

The restaurant trade is relatively large in B.C. and could possibly become a large outlet for fresh farmed salmon during the period when fresh wild salmon is not available. There are indications that B.C. producers may be neglecting their own domestic market. For example, one of the salmon farms in Washington State reported annual sales of approximately 16 tonnes of farmed salmon to B.C. in 1983 and 1984. In addition, B.C. Packers is currently importing ocean ranched salmon from Oregon. In 1984, this company imported about 45 tonnes of Oregon ranched salmon into B.C.

The prairies and eastern Canada also represent a growing market for B.C. farmed salmon. Almost no salmon production is taking place in these two areas of Canada. Consequently, the potential exists for B.C. salmon to expand in these markets. Currently, a very small amount of Norwegian farmed salmon has entered eastern Canada. This however could increase fairly quickly because more Norwegian exporters are receiving health clearance to enter the Canadian market.

CONCLUSION

Norwegian salmon has become a dominant factor in North America. The U.S. imported a small quantity of Norwegian salmon in 1980, but became Norway's largest market in 1985. This trend is expected to continue as the Norwegians increase their production. There is no indication that this increase will level off in the near future. This situation has generated concern among B.C. farmed salmon producers who are looking to expand their U.S. sales.

The production of B.C. farmed salmon is expected to increase at a relatively high rate in the near future. Hence, B.C. producers need to assess their market opportunities immediately. Up to this time, Canadian imports to the U.S. have been primarily wild caught salmon. The Norwegians have shown us that a high quality, fresh, farmed salmon can open up new markets. In order to take advantage of this situation it is imperative that B.C. salmon farmers produce a consistent product of equal or higher quality to that supplied by Norway, and provide it at a competitive price. As well, B.C. producers should evaluate any marketing advantages or disadvantages inherent in the Coho or Chinook varieties as compared to the Atlantic salmon raised by Norway. Effective product differentiation and promotion could have major benefits in developing these markets.

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